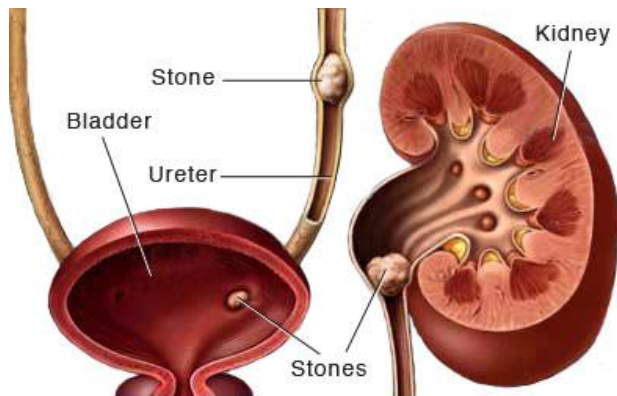
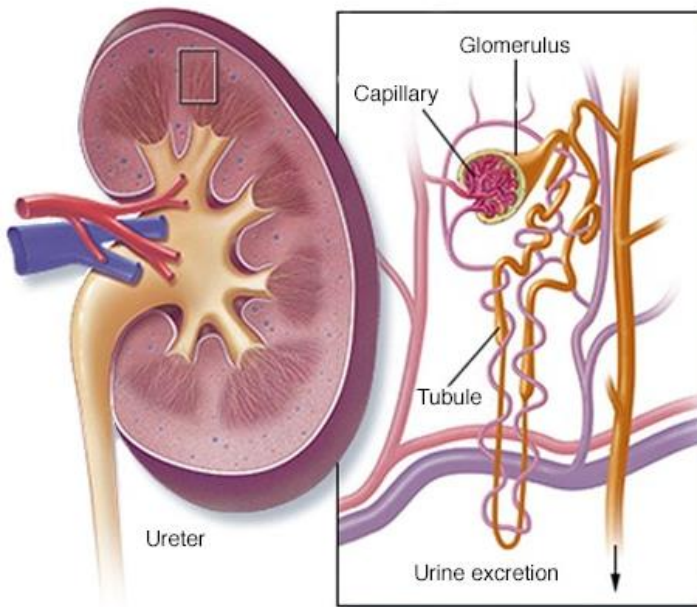


STUDY GUIDE

RENAL & EXCRETORY SYSTEM-II MODULE

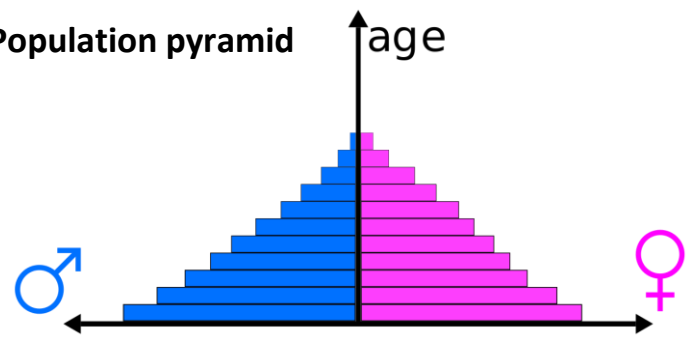
THIRD YEAR MBBS

July – August 2020

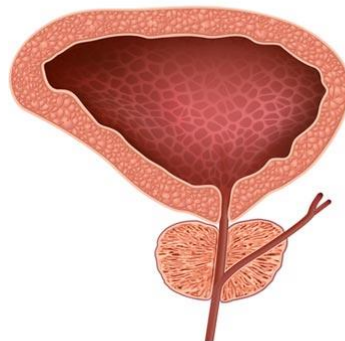


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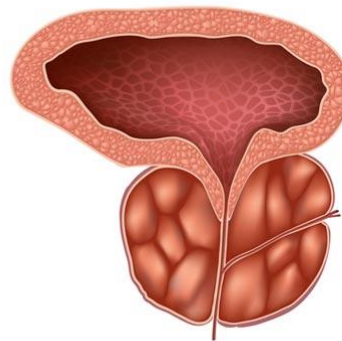
Population pyramid



Benign Prostatic Hyperplasia



Normal prostate



Enlarged prostate



LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE

Institute for Postgraduate Medical Studies & Health Science



STUDY GUIDE FOR RENAL & EXCRETORY SYSTEM-II MODULE

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Module name: Renal & Excretory System-II Year: Three Duration: 4 weeks (July - August 2020)

Timetable hours: Lectures, Case-Based Integrated Learning (CBIL), Clinical Rotations, learning experience in LNH outreach centers, Laboratory, Practical, Demonstrations, Skills, Self-Study

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	<ul style="list-style-type: none"> • Prof. Kunwer Naveed (Nephrology)
CO-COORDINATORS:	<ul style="list-style-type: none"> • Dr. Mehnaz Umair (DHCE) • Dr. Farzana Adnan (Nephrology)

DEPARTMENTS' & RESOURCE PERSONS' FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
ANATOMY <ul style="list-style-type: none"> • Prof. Zia-ul-Islam 	NEPHROLOGY <ul style="list-style-type: none"> • Prof. Kunwer Naveed • Dr. Farzana Adnan
COMMUNITY MEDICINE <ul style="list-style-type: none"> • Dr. Saima Zainab 	RESEARCH & SKILLS DEVELOPMENT CENTER <ul style="list-style-type: none"> • Dr. Kahkashan Tahir
FORENSIC MEDICINE <ul style="list-style-type: none"> • Prof. Murad Zafar Marri 	PEDIATRICS <ul style="list-style-type: none"> • Prof. Samina Shamim • Dr. Atika Sher
PATHOLOGY <ul style="list-style-type: none"> • Prof. Naveen Faridi • Dr. Rabia Ali 	UROLOGY <ul style="list-style-type: none"> • Dr. Aziz Abdullah • Dr. Shahab Javid
PHARMACOLOGY <ul style="list-style-type: none"> • Prof. Nazir Ahmad Solangi 	RADIOLOGY <ul style="list-style-type: none"> • Dr. Misbah Tahir
DEPARTMENT of HEALTH PROFESSIONS EDUCATION	
<ul style="list-style-type: none"> • Prof. Nighat Huda • Dr. Muhammad Suleman • Dr. Sobia Ali • Dr. Mehnaz Umair • Dr. Afifa Tabassum 	
LNH&MCMANAGEMENT	
<ul style="list-style-type: none"> • Professor Karimullah Makki, Principal, LNH&MC • Dr. Shaheena Akbani, Director A.A & R.T, LNH&MC 	
STUDY GUIDE COMPILED BY: Department of Health Professions Education	

INTRODUCTION

WHAT ISA STUDYGUIDE?

It is an aid to:

- Inform students how student learning program of the module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDYGUIDE:

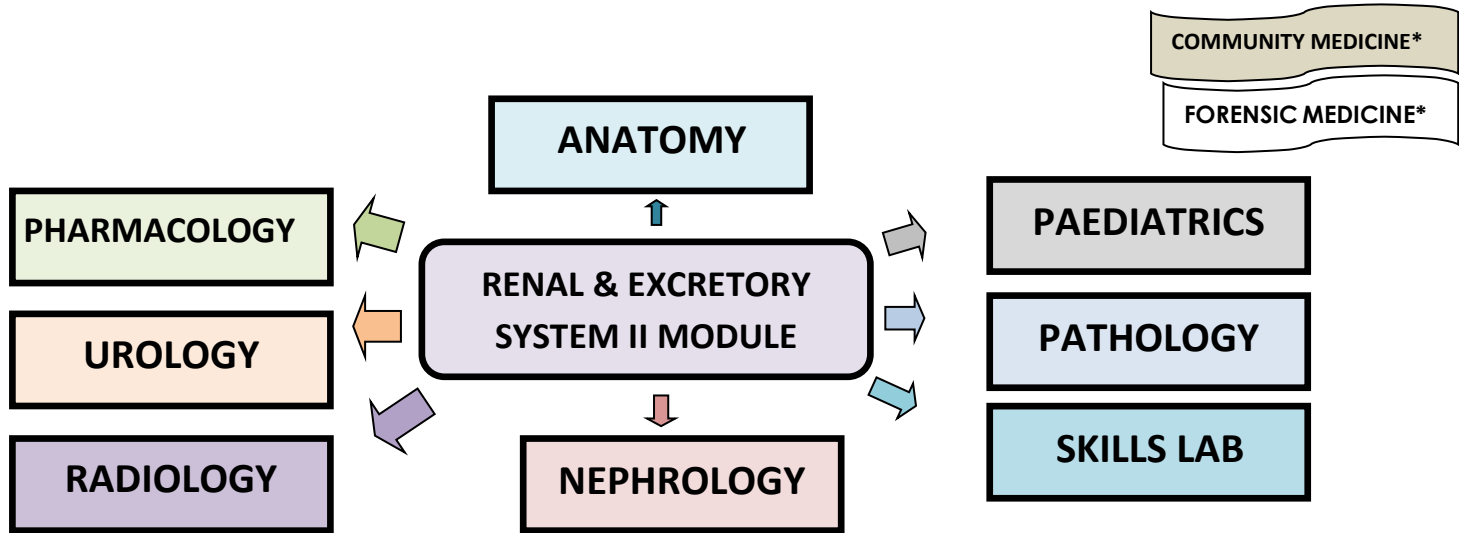
- Communicates information on organization and management of the module.
This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial and case based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer assisted learning programs, web-links, journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's Achievement of objectives.
- Focuses on information pertaining to examination policy, rules and regulations.

CURRICULUM FRAMEWORK

Students will experience integrated curriculum similar to previous modules.

INTEGRATED CURRICULUM comprises of system-based modules such as GIT & Liver II, Renal & Excretory System II and Endocrinology II which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

LEARNING EXPERIENCES: Case based integrated discussions, skills acquisition in skills lab. Computer-based assignments, learning experiences in clinics, wards, and outreach centers.

INTEGRATING DISCIPLINES OF RENAL & EXCRETORY SYSTEM –II MODULE

Note: *Forensic medicine & Community medicine will run parallel in 3rd year

LEARNING METHODOLOGIES

The following teaching/ learning methods are used to promote better understanding:

- Interactive Lectures
- Small Group Discussion
- Case- Based Integrated Learning (CBIL)
- Clinical Experiences
 - Clinical Rotations
 - Experience in LNH outreach centers
- Practicals
- Skills session
- Self-Directed Study

INTERACTIVE LECTURES: In large group, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

SMALL GROUP SESSION: This format helps students to clarify concepts, acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

CASE-BASED INTEGRATED LEARNING (CBIL): A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained previously in clinical and basic health sciences during the module and construct new knowledge. The CBIL will be provided by the concern department.

CLINICAL LEARNING EXPERIENCES: In small groups, students observe patients with signs and symptoms in hospital wards, clinics and outreach centers. This helps students to relate knowledge of basic and clinical sciences of the module and prepare for future practice.

- **CLINICAL ROTATIONS:** In small groups, students rotate in different wards like Medicine, Pediatrics, Surgery, Obs & Gyne, ENT, Eye, Family Medicine clinics, outreach centers & Community Medicine experiences. Here students observe patients, take histories and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas.
- **EXPERIENCE IN LNH OUTREACH CENTERS:** Learning at outreach centers of LNH have been organized and incorporated as part of training of third year medicinal students. The objective is to provide clinical training experiences for students in primary care settings.

PRACTICAL: Basic science practicals related to pharmacology, microbiology, pathology, forensic medicine, and community medicine have been schedule for student learning.

SKILLS SESSION: Skills relevant to respective module are observed and practiced where applicable in skills laboratory.

SELF-DIRECTED STUDY: Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time with in the college scheduled hours of self-study.

MODULE2: RENAL & EXCRETORY SYSTEM-II

INTRODUCTION

Kidney disease has an indirect impact on global morbidity and mortality by increasing the risks associated with at least five other major killers: cardiovascular diseases, diabetes, hypertension, infection with human immunodeficiency virus (HIV) and malaria^[1]. Worldwide, estimated prevalence of Chronic Kidney Disease is 10.4% in men and 11.8% in women^[2]. In Pakistan common causes of CKD identified in the patients included diabetic nephropathy (28%), glomerulonephritis (22%), hypertension (14.6%), tubulo-interstitial disease (13.4%) and renal stone disease (8%)^[3].

This module aims to equip medical undergraduates with the essential knowledge and skills required for dealing with prevalent renal disorders in the local context. This is the second module on renal and excretory system in MBBS course. The basics of renal and excretory system including anatomy, physiology, biochemistry, pathology and introduction to clinical presentations have been addressed in the first module. The module will focus on common diseases of the renal and excretory system, including infections, obstructive, genetics and acquired disorders and cancerous and non-cancerous renal and excretory diseases.

References:

1. Luyckx VA, Tonelli M, Stanifer JW. The global burden of kidney disease and the sustainable development goals. *Bulletin of the World Health Organization*. 2018 Jun 1;96(6):414.
2. Coresh J. Update on the Burden of CKD. *Journal of the American Society of Nephrology*. 2017 Apr 1;28(4):1020-2.
3. Kifayat Ullah, Ghias Butt, Imtiaz Masroor, Kinza Kanwal, Farina Kifayat (2015) Epidemiology of chronic kidney disease in a Pakistani population. *Saudi Journal of kidney diseases and transplant*, 2015 Nov;26(6):1307-10. doi: 10.4103/1319-2442.168694.

COURSE OBJECTIVES AND STRATEGIES

At the end of the module the students will be able to:

TOPICS & OBJECTIVES	FACULTY	LEARNING STRATEGY
OVERVIEW, UTI, UROLITHIASIS		
<ul style="list-style-type: none"> Describe the gross anatomy of male and female urinary system 	Anatomy	Interactive Lectures
<ul style="list-style-type: none"> Classify cystic diseases of the kidneys Discuss genetics, pathogenesis, morphology and clinical features of autosomal dominant, autosomal recessive and polycystic kidney disease Describe cystic diseases of renal medulla 	Pathology	Interactive Lecture
<ul style="list-style-type: none"> Interpret urine analysis Demonstrate proteinuria in a given sample of urine by Lab/Dipstix Method 		Practical
<ul style="list-style-type: none"> Describe the procedure of performing urine C/S 	Nephrology	Interactive Lecture
<ul style="list-style-type: none"> Explain renal function tests Interpret renal function tests (RFT) 		
<ul style="list-style-type: none"> Demonstrate steps of Foley's catheterization 	Skills Lab	Small Group Discussion with Hands On
<ul style="list-style-type: none"> Discuss causes, pathogenesis, morphology and clinical features of Hydronephrosis Describe the four main types of renal stones and their pathogenesis 	Pathology	Interactive Lectures
<ul style="list-style-type: none"> Identify etiologies and patho-physiology for upper and lower urinary tract infections 		
<ul style="list-style-type: none"> Identify treatments and medications used in the management of renal calculus urolithiasis 	Urology	Interactive Lectures
<ul style="list-style-type: none"> Analyze clinical signs and symptoms of major renal and urinary tract diseases 		
<ul style="list-style-type: none"> Classify diuretics, mechanism of action, therapeutic uses, pharmacokinetic profile and adverse effects of diuretics 	Pharmacology	Interactive Lecture
<ul style="list-style-type: none"> Evaluate a patient with diseases of the kidneys and urinary tract Describe the effects and management of obstructive urinary tract disease 	Urology	Interactive Lecture
<ul style="list-style-type: none"> Identify common infectious etiologies for upper and lower urinary tract infections Analyze clinical signs and symptoms of common renal diseases to construct a differential diagnosis 	Pediatrics	Interactive Lecture

<ul style="list-style-type: none"> Describe the approach for evaluating and treating common renal diseases 		
ACUTE KIDNEY INJURY AND GLOMERULONEPHRITIS		
<ul style="list-style-type: none"> Classify specific renal diseases according to three major components on the basis of glomerular, vascular and tubulointerstitial types Discuss pathogenesis of glomerular diseases 	Pathology	Interactive Lecture
<ul style="list-style-type: none"> Discuss the etiology and diagnosis of the common renal diseases in children including nephrotic and nephritic syndromes Identify the difference between upper and lower urinary tract hematuria Explain the common causes of proteinuria 	Pediatrics	Interactive Lecture
<ul style="list-style-type: none"> Discuss diseases associated with nephrotic and nephritic syndrome 	Pathology	Interactive Lecture
<ul style="list-style-type: none"> Describe the diagnosis and management of <ul style="list-style-type: none"> Acute kidney injury (AKI) Nephrotic syndrome 	Nephrology	Interactive Lecture
<ul style="list-style-type: none"> Relate clinical signs and symptoms of renal disease to underlying pathophysiology of Tubulointerstitial disease 	Pathology	Interactive Lecture
<ul style="list-style-type: none"> Discuss rationale of the management of particular clinical conditions with different classes of diuretics along with the pharmacokinetic and dynamics of those classes of drugs 	Pharmacology	Small Group Discussion
<ul style="list-style-type: none"> Describe the pathophysiology, morphology and clinical features in Glomerular conditions associated with systemic disease 	Pathology	Interactive Lecture
CHRONIC KIDNEY DISEASES(CKD) and RENAL REPLACEMENT THERAPY(RRT)		
<ul style="list-style-type: none"> Describe the diagnosis and management of chronic Kidney diseases 	Nephrology	Interactive Lecture/Case-Based Discussion
<ul style="list-style-type: none"> Describe the major characteristics of the renal replacement therapy RRT modalities Identify indications and contraindications for RRT Compare RRT to intermittent dialysis therapy 	Nephrology	Interactive Lecture
<ul style="list-style-type: none"> Discuss Acute kidney injury and chronic kidney diseases 	Pediatrics	Interactive Lecture
BENIGN PROSTATIC HYPERTROPHY, TUMOURS OF URINARY SYSTEM		
<ul style="list-style-type: none"> Discuss Benign Prostatic Hyperplasia and Prostatic carcinoma as a cause of urinary outflow obstruction Explain the genetics, pathogenesis, morphology and clinical features of Prostatic carcinoma 	Pathology	Interactive Lecture
<ul style="list-style-type: none"> Describe approaches for evaluating and treating diseases of prostate 	Urology	Interactive Lecture
<ul style="list-style-type: none"> Classify the risk factors, histology, pathophysiology & clinical features of renal cancers Classify Urothelial tumors 	Pathology	Interactive Lecture

<ul style="list-style-type: none"> Discuss etiology, pathogenesis, morphology and clinical features of urothelial tumors 			
<ul style="list-style-type: none"> Describe the evaluation, diagnosis and management of kidney tumors 	Urology	Interactive Lecture	
<ul style="list-style-type: none"> Interpret imaging modalities including IVP/US/Renal CT and pyelography used in the diagnosis of renal pathologies 	Radiology	Small Group Discussion	
COMMUNITY MEDICINE			
<ul style="list-style-type: none"> Explain the concept of demography in Pakistan 	Community Medicine	Interactive Lectures/ Tutorials	
<ul style="list-style-type: none"> Discuss the determinants of fertility in a population and its concept in health system of Pakistan 			
<ul style="list-style-type: none"> Describe the determinants of mortality and its role in demography of Pakistan 			
<ul style="list-style-type: none"> Distinguish the various measures of morbidity and its impact on population 			
<ul style="list-style-type: none"> Interpret the population pyramid and its various applications 			
<ul style="list-style-type: none"> Explain the balancing equation and its application in different scenarios Explain demographic transition 			
FORENSIC MEDICINE			
<p>Rape</p> <ul style="list-style-type: none"> Explain Legal definition of rape and its types Describe procedure of medico-legal examination of rape victim which include: <ul style="list-style-type: none"> Consent Specific history related to alleged offence General examination Physical examination Examination of genitalia 			
<p>Examination of Accused in alleged rape</p> <ul style="list-style-type: none"> Describe procedure of medico-legal examination of accused in alleged rape which include: <ul style="list-style-type: none"> Medicolegal Examination of Consent History General examination Physical examination Examination of genitalia 			
<p>Discuss:</p> <ul style="list-style-type: none"> Sexual offences Sexual deviations/ perversions Drug-facilitated sexual assault (Date rape) 			Small Group Discussion
<p>Sodomy</p> <ul style="list-style-type: none"> Describe medicolegal examination of passive and active agents in an alleged case of <i>sodomy</i> 			
<p>Forensic specimens collection in sex- offence</p> <ul style="list-style-type: none"> Discuss the process of specimen collection which include: 			

<ul style="list-style-type: none"> ○ The purpose of forensic specimens ○ Specimen collection techniques ○ Laboratory Diagnostic tests 	Forensic Medicine	Interactive Lecture
<ul style="list-style-type: none"> ○ Discuss the types, signs & symptoms, treatment, post mortem appearance and medicolegal importance of ○ Organophosphate poisoning ○ Animal poisons ○ Irrespirable gases ○ Spinal poisons (Strychnine) ○ Cardiac poisons (Digitalis, Aconite, Nicotine) ○ Therapeutic poisoning (Paracetamol, Benzodiazepines) 		Small Group Discussion
<ul style="list-style-type: none"> ● State medicolegal report in sexual assault case 		Interactive Lecture

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered.



LEARNING RESOURCES

SUBJECT	RESOURCES
ANATOMY	<p>A. <u>GROSSANATOMY</u></p> <ol style="list-style-type: none"> 1. K.L. Moore, Clinically Oriented Anatomy <p>B. <u>EMBRYOLOGY</u></p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 2. Langman's Medical Embryology
COMMUNITY MEDICINE	<p><u>TEXTBOOKS</u></p> <ol style="list-style-type: none"> 1. Community Medicine by Parikh 2. Community Medicine by Milliyas 3. Basic <i>Statistics</i> for the Health Sciences by Jan W Kuzma
FORENSIC MEDICINE	<p><u>TEXT BOOKS</u></p> <ol style="list-style-type: none"> 1. Nasib R. Awan. Principles and practice of Forensic Medicine 1st ed. 2002. 2. Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 7th ed. 2005. <p><u>REFERENCE BOOKS</u></p> <ol style="list-style-type: none"> 3. Knight B. Simpson's Forensic Medicine. 11th ed. 1993. 4. Knight and Pekka. Principles of forensic medicine. 3rd ed. 2004 5. Krishan VIJ. Text book of forensic medicine and toxicology (principles and practice). 4th ed. 2007 6. Dikshit P.C. Text book of forensic medicine and toxicology. 1st ed. 2010 7. Polson. Polson's Essential of Forensic Medicine. 4th edition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao. Practical Forensic Medicine 3rd ed, 2007. 10. Knight: Simpson's Forensic Medicine 10th 1991, 11th ed. 1993 11. Taylor's Principles and Practice of Medical Jurisprudence. 15th ed. 1999 <p><u>CDs:</u></p> <ol style="list-style-type: none"> 1. Lectures on Forensic Medicine. 2. Atlas of Forensic Medicine. <p><u>WEBSITES:</u></p> <p>www.forensicmedicine.co.uk</p>
GENERAL MEDICINE	<p><u>REFERENCE BOOKS:</u></p> <ol style="list-style-type: none"> 1. Hutchison's Clinical Methods, 23rd Edition 2. MacLeod's clinical examination 13th edition 3. Davidson's Principles and Practice of Medicine 4. Kumar and Clark's Clinical Medicine 5. HCAI guidelines CDC 6. WHO TB guidelines

PATHOLOGY/MICROBIOLOGY	<u>TEXTBOOKS</u> 1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4 th edition by Edward F. Goljan MD
	<u>WEBSITES:</u> 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/
PEDIATRICS	<u>TEXT BOOK:</u> 1. Basis of Pediatrics (8 th Edition Pervez Akbar)
PHARMACOLOGY	A. <u>TEXTBOOKS</u> 1. Lippincott Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung
PHYSIOLOGY	A. <u>TEXTBOOKS</u> 1. Textbook of Medical Physiology by Guyton and Hall 2. Ganong's Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne & Levy Physiology 5. Best & Taylor Physiological Basis of Medical Practice

ADDITIONAL LEARNING RESOURCES

<u>Hands-on Activities/ Practical</u>	Students will be involved in Practical sessions and hands-on activities that link with the Renal and Excretory module-II to enhance learning.
<u>Labs</u>	Utilize the lab to relate the knowledge to the specimens and models available.
<u>Skills Lab</u>	Provides the simulators to learn the basic skills and procedures. This helps build confidence when approaching patients in real settings.
<u>Videos</u>	Familiarize the student with the procedures and protocols to assist patients.
<u>Computer Lab/CDs/DVDs/Internet Resources:</u>	To increase knowledge and motivation of students through the available internet resources and CDs/DVDs. This will be an additional advantage to meaningful learning.
<u>Self Learning</u>	Self Learning is when students seek information to solve cases, read through different resources and discuss among peers, and with the faculty to clarify the concepts.

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**

BCQs:

- A BCQ has a statement or clinical scenario of four options (likely answers).
- **Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.**
- Students mark their responses on specified computer-based sheet designed for LNHMC.

OSCE:

- All students rotate through the same series of stations in the same allocated time.
- At each station, a brief written statement includes the task. Student completes the given task at one given station in a specified time.
- Stations are observed, unobserved, interactive or rest stations.
- In unobserved stations, flowcharts, models, slide identification, lab reports, case scenarios may be used to cover knowledge component of the content.
- Observed station: Performance of skills /procedures is observed by assessor
- Interactive: Examiner/s ask questions related to the task within the time allocated.
- In Rest station, students in the given time not given any specific task but wait to move to the following station.

Internal Evaluation

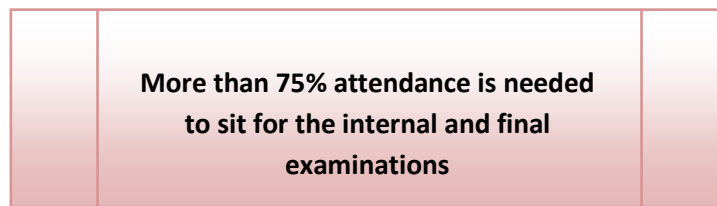
- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to JSMU final exam. That 20% may include class tests, assignment, practicals and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual department may hold quiz or short answer questions to help students assess their own learning.

The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult JSMU website!



LNH&MC EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue, 30 minutes before the exam.
- **Exam will begin sharp at the given time.**
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in examination hall.**
- If any student is found with cell phone in any mode (silent, switched off or on) he/she will be not be allowed to continue their exam.
- No students will be allowed to sit in exam without University Admit Card, LNMC College ID Card and Lab Coat
- Student must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

WEEKS	3 RD YEAR	MONTH
WEEK 1-5.5	INFECTIOUS DISEASES MODULE	2 nd Dec 2019
		7 th Jan 2020
WEEK 1-4.5	HEMATOLOGY MODULE	8 th Jan 2020
		4 th Feb 2020
WEEK 1-4.5	RESPIRATORY MODULE	6 th Feb 2020
		21 st March 2020
WEEK 1-4	CVS MODULE	24 th March 2020
		18 th April 2020
WEEK 1-8	GIT & HEPATOBILIARY MODULE	20 th April 2020
		13 th June 2020
WEEK 1-5	RENAL & EXCRETORY SYSTEM II MODULE	27 th July 2020
		26 th Aug 2020